REMARKS

Examiner rejects claims 11-16 and 18-20 under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (WO 0119920). The Examiner rejects claims 11-16 and 18-20 and under 35 U.S.C. 102(a or e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being unpatentable over Varma (US 2002/0160137). Further, the Examiner rejects claims 11-16 and 18-20 under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, 35 U.S.C. 103(a) as being unpatentable over Maekawa et al. (US 6,096,435).

Zhang & Varma

Applicant respectfully maintains that Zhang et al. and Varma fail to disclose, teach, or render obvious Applicant's invention. Zhang et al discloses the structure S-I/B-S, neither suggests $[S\text{-}I/B]_nX$ (see new claim 34). Neither Zhang nor Varma discuss or mention the glass transition temperature (Tg) requirement of Applicant's invention. Applicant's invention specifically require a polymer with a midblock having the characteristic of "said polymer block (I/B) has a glass transition temperature (Tg) of at most -60°C (determined according to ASTM E-l356-98)" as recited in Applicant's independent claim 11. The Tg is effected by, among other things, the amount of I and B. So, one could have one part of I and 100,000 parts B, or one part B and 300,000 parts I. The Tg of each of these would be very different, yet both are diene blends of I/B. Even if Zhang and Varma disclose polymers that have a similar structure, neither Zhang nor Varma teach Applicant's <u>specific</u> SBC, because they do not disclose a polymer with the

same Tg. Lastly, neither of these references teaches a 30/70 to 70/30 ratio. Varma appears to teach only S-B-S or S-I-S per paragraph 0009 and 0049. It does not appear to teach a blend of dienes I/B.

The Examiner states that the burden is on Applicant to demonstrate that "despite the similarity in structure the prior art compositions/components do not possess the recited properties of said structure." However, the Examiner's argument is flawed, because the Examiner simply has not shown that the prior art is similar to Applicant's invention in any way other than structure and the use of polymers. Zhang and Varma both disclose a styrenic block copolymer, but that is all. Zhang and Varma both describe alternative structures to their disclosed polymers; they are not focused exclusively on polymers of the S-I/B-S or (S-I/B)nX structures. Neither teaches the 70/30 or 30/70 ratio.

The Examiner's claim that all S-I/B-S polymers possess the same characteristics (in this case the Tg being the most important - yet never mentioned in Zhang or Varma) is simply unfounded. Styrenic block copolymers differ in length, weight (molecular), polarity, ratio of isoprene to butadiene, reactivity, and importantly, glass transition temperature or Tg. Further, the mid-blocks of an S-I/B-S polymer can be different and lead to different properties and characteristics of the SBC. Indeed, often times it is the structure of the mid-block, including ratio of components, identity of components, whether they are hydrogenated or not, molecular weights, etc., that determine the characteristics of the resultant SBC. In the art it is well known that controlling the makeup of the mid-block can determine the physical and chemical characteristics and

reactivity of the whole SBC. Thus, each of these characteristics is important in distinguishing a SBC and defining what type and kind of polymer it is. The structure, while important, is only one aspect of the whole SBC. Indeed, a polymer is identified by not only its structure, but by its physical, chemical, and potentially properties when blended with other components, many of which can be and are determined by the makeup of the mid-block. As such, the similarity in basic structure of two SBCs does not mean that the properties of the SBCs are similar. In this instance, neither Zhang et al. nor Varma disclose or teach Applicant's invented compound. They do not teach the ratio of components in the midblock nor do they speak to the required purity of the butadiene and isoprene. Most importantly, however, they do not even mention the Tg requirement. Thus, they do not render Applicant's invention anticipated under §102 nor obvious under §103.

In addition to failing to teach Applicant's specific SBC and combination, Zhang and Varma are focused on a fundamentally different goals - providing a polymer usable in a microscopically-expanded, three-dimensional, elastomeric web, ultimately used in bandages, dressings, and wraps in the case of Zhang, and creating a gas impermeable seal from a typically gas permeable thermoplastic elastomer in the case of Varma. Indeed, Zhang requires about 20 – 80 % by weight of an elastomeric copolymer, from 3 – 60% of a vinylarene, and from 5 – 60% of a processing oil. (Zhang Claim 1). Further, Zhang does not place any requirements of specific molecular weights for the styrene as does Applicant. When compared to Zhang, Applicant's invention uses a much higher

concentration of the styrenic block copolymer. Specifically, Applicant's invention utilizes at least 65 wt% of the styrenic block copolymer.

Like the disclosure and teachings of Zhang and in direct contrast to Applicant's invention, Varma does not have anything to do with the creation of films. Varma is directed to and focused on creating a gas impermeable seal from a typically gas permeable thermoplastic elastomer. Thus, Varma is directed to the conversion of a thermoplastic elastomer with unsatisfactory oxygen permeability to one that is oxygen impermeable. It has nothing to do with glass transition temperatures. Varma teaches that the method by which the conversion to a gas-impermeable seal is accomplished is by plasticizing the elastomer with a "plastic" polymer. Varma teaches blending the thermoplastic elastomer with "polybutene," which Varma defines as isobutylene, homo- and/or copolymers. Varma states that the SBS polymers typically have unacceptable oxygen permeability until they are blended with the polybutene. Varma teaches that blending often results in a polymer that has too high a degree of tackiness, thus necessitating the addition of polybutene oil. Further, Varma teaches that in some instances it is necessary to add a detackifier to the blend. None of these limitations are used by Applicant's invention.

Varma is concerned and directed to the hardness of the polymers and polymer blend, not the Tg value. Specifically, Varma teaches that the SBS blend must have a hardness of Shore A 30 up to 90. Varma is silent with respect to any requirements

regarding glass transition temperatures for the SBS polymers, only addressing the Tg values as a result of the hardness characteristics.

In contrast to Varma, Applicant's invention is comprised of a styrenic block copolymer with specific requirements. One of those requirements is that the mid-block of isoprene/butadiene use substantially pure isoprene/butadiene. Specifically, Applicant's invention requires a SBC having a molecular structure of S-(I/B)-S or [S-(I/B)]nX wherein S is styrene and (I/B) is a block of isoprene and butadiene, having a Tg of at most -60C, having isorprene/butadiene ratios of 30/70 to 70/30, and having a molecular weight of between 110,000 and 160,000 (a much narrower range than that disclosed by Varma). Further, Applicant's invention does not use a detackifier, which Varma does. Also, Applicant's invention will not allow a simply random combination of isoprene/butadiene as a mid-block. Rather, the isoprene/butadiene mid-block must be selected and constructed to have particular characteristics, namely a glass transition temperature of at most -60° C. Therefore, Varma does not and cannot anticipate or render obvious Applicant's invention.

The Examiner's new reference - US Patent No. 6,096,435 to Maekawa et al. (hereinafter Maekawa) suffers from the same fatal flaws. It does not mention glass transition temperature Tg at all. It does not disclose [S-I/B] nX as is now required by new claim 34. It does not disclose a 70/30 to 30/70 ratio. Maekawa is directed to and concerned with the creation of a hot-melt adhesive. The purpose of the adhesive is to bond a thermoplastic polymer to both polar and non-polar surfaces. Maekawa describes this

purpose and being to bond a thermoplastic to plastics and metals, regardless of the polarity of the specific surface. Unlike Applicant's invention, Maekawa has nothing to do with gel-free films. All the examples in Maekawa are hydrogenated SBC's not any blend of midblock dienes – I/B.

The Examiner's claim that similarly structured polymers possess the same characteristics (in this case the Tg being the most important - yet never mentioned by Maekawa) is flawed. Styrenic block copolymers differ in length, weight (molecular), polarity, ratio of isoprene to butadiene, reactivity, and importantly, glass transition temperature or Tg. Further, the mid-blocks of an SBC polymer, even an S-I/B-S polymer can be different and lead to different properties and characteristics of the SBC. This is especially true with the polymers disclosed and taught by Maekawa since the mid-blocks can have other polymers besides isoprene and butadiene. Again, it is the structure of the mid-block, including ratio of components, <u>identity</u> of components, whether they are hydrogenated or not, molecular weights, etc., that determine the characteristics of the resultant SBC. In the art it is well known that controlling the makeup of the mid-block can determine the physical and chemical characteristics and reactivity of the whole SBC. Thus, each of these characteristics is important in distinguishing a SBC and defining what type and kind of polymer it is. As such, Maekawa's allowance for other polymers besides isoprene and butadiene to be used as the mid-block of the SBC destroys any possible anticipation of Applicant's invention that requires substantially pure isoprene/butadiene blends as the mid-block. Indee, the structure, while important, is only one aspect of the whole SBC. As such, the similarity in basic structure of two SBCs does

not mean that the properties of the SBCs are similar especially when the makeup of the mid-block can be completely different. In the case of Maekawa, the failure to specify a specific glass transition temperature requirement for the mid-block is fatal, particularly in light of the fact that Maekawa teaches that the mid-block can be constructed of different polymers than those required by Applicant. Maekawa does not disclose or teach the same compounds as Applicant's invented compound. It does not teach the ratio of components in the midblock nor even the same polymeric makeup of the mid-block. Thus, Maekawa does not and cannot anticipate under §102, nor render obvious under §103 Applicant's invention.

CONCLUSION

In light of the foregoing Remarks, Applicant strongly believes that this Application is in proper condition for Allowance and such is solicited.

Respectfully submitted,

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